

## REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

New claims 27-33 have been added.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

The disclosure of Applicant's application provides support for the amendments to the claims. For example, at least page 4, lines 5-17, and page 5, lines 6-8, and Figures 3a, 3b, and 3c and their associated text provide support for the amendments to claim 1.

For instance, one skilled in the art would understand that the bundle drawing and coil shaving processes disclosed on page 5, lines 6-9, of Applicant's specification, due to the nature of these processes and the equipment they employ, would produce fibers with a polygonal cross section.

After amending the claims as set forth above, claims 1, 2, 4, 7-17, 20, and 23-33 are now pending in this application.

### **Rejections under 35 U.S.C. § 103**

Claims 1, 2, 4, 6-17, 19, 20, and 26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,554,225 to Sounai *et al.* (hereafter "Sounai") in view of U.S. Patent No. 6,562,507 to Cisar *et al.* (hereafter "Cisar"). This rejection is respectfully traversed.

Sounai discloses a molten carbonate fuel cell with a cathode 14, an anode 15, an electrolyte layer 13, and an interconnect 12. See Sounai at col. 4, lines 19-30. Each of the cathode 14 and anode 15 include a first porous layer 18 formed at a side of the electrolyte layer 13 and a second porous layer 19 formed at the opposite side. See Sounai at col. 4, lines

36-42, and Figure 2. Sounai discloses that the first porous layer 18 and the second porous layer 19 have a porosity of 60-80%. See Sounai at col. 4, lines 42-52.

Sounai discloses that the pore size of the first porous layer 18 is set to allow capillary action and that the pore size of the second porous layer 19 is set to not allow the capillary action, with the first porous layer 18 having a small pore size and the second porous layer 19 having a large pore size. See Sounai at col. 5, lines 25-29, 41-46, and Figure 2. Sounai discloses that the first porous layer 18 has a pore size of 0.3 to 20 $\mu$ m, while the second porous layer 19 has a pore size of 21 to 50  $\mu$ m. See Sounai at col. 4, lines 44-52.

Sounai does not disclose or suggest a stack comprising, among other things, an impermeable metal structure, at least one first metal fiber layer, said first metal fiber layer comprising first metal fibers, said first metal fibers having a polygonal cross section, and at least one second metal fiber layer, said second metal fiber layer comprising second metal fibers, said second metal fibers having a polygonal cross section, as recited in amended claim 1. Claims 2, 4, 6-17, 19, 20, and 26 depend from claim 1. Sounai is silent in regard to fibers having a polygonal cross section. Applicant notes that fibers having a polygonal cross section have, when used as a porous material, a higher resistance to flow than fibers with circular cross sections.

Nor does Sounai disclose or suggest that such first and second metal fiber layers are sintered to each other, as recited in claim 1.

In addition, Sounai does not disclose or suggest the planar air permeability recited in claim 1. Further, flow theory, and planar air permeability properties, are complex and are determined by more parameters than porosity, pore size, and a distribution of porosity. Other parameters, including fiber shape, fiber length, fiber orientation in a three-dimensional fiber layer, and pore shape, affect permeability. Considering these factors, along with the differences in fiber cross sectional shape and fiber length, Applicant submits that Sounai would not provide the planar air permeability of claim 1.

Cisar does not remedy the deficiencies of Sounai discussed above because Cisar also does not disclose or suggest a stack comprising, among other things, an impermeable metal

structure, at least one first metal fiber layer, said first metal fiber layer comprising first metal fibers, said first metal fibers having a polygonal cross section, and at least one second metal fiber layer, said second metal fiber layer comprising second metal fibers, said second metal fibers having a polygonal cross section, as recited in amended claim 1. Cisar is also silent in regard to fibers having a polygonal cross section. Further, Cisar does not disclose or suggest lengths for fiber and therefore the combination of Sounai and Cisar would not provide fibers as recited in claim 1.

In addition, Cisar does not disclose or suggest the planar air permeability recited in claim 1. As discussed above, the determination of planar air permeability is complex and considers numerous parameters, including fiber shape, and Cisar does not disclose or suggest the fiber shape of a polygonal cross section, as recited in claim 1.

For at least these reasons, the combination of Sounai and Cisar does not disclose or suggest all of the features of claim 1 and therefore does not render claims 1, 2, 4, 6-17, 19, 20, and 26 to be unpatentable. Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 23-25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sounai and Cisar in view of U.S. Pub. No. 2002/0150808 to Uchida *et al.* (hereafter “Uchida”). This rejection is respectfully traversed. Uchida fails to remedy the deficiencies of Sounai and Cisar discussed above in regard to independent claim 1, from which claims 23-25 depend. Reconsideration and withdrawal of this rejection is respectfully requested.

### **New Claims**

New claims 27-33 have been added. Claims 27-33 depend from claim 1 and are allowable over the prior art for at least the reasons discussed above and for their respective additional recitations.

### **Conclusion**

Applicant submits that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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By Glenn Law

FOLEY & LARDNER LLP  
Customer Number: 22428  
Telephone: (202) 295-4011  
Facsimile: (202) 672-5399

Glenn Law  
Attorney for Applicant  
Registration No. 34,371

Kevin L. McHenry  
Attorney for Applicant  
Registration No. 62,582